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EDUCATION

Ph.D. Physics, 1992	The Johns Hopkins University, Baltimore, Maryland
Thesis Title:	*Elastic Properties of Metallic Thin Films and Multilayers*
Thesis Advisor:	*Prof. Karl Sieradzki*
M. A. Physics, 1986	The Johns Hopkins University, Baltimore, Maryland
Research Advisor:	*Prof. Chia-Ling Chien*
B. S. Physics, 1983	Harvey Mudd College, Claremont, California

EXPERIENCE

1999 – present	Physicist Lawrence Livermore National Laboratory, Livermore, California
1995 – 1999	Assistant Professor of Physics Auburn University, Auburn, Alabama
1992 – 1995	National Research Council Postdoctoral Associate U.S. Naval Research Laboratory, Washington, D.C.
1986 – 1992	Research Assistant The Johns Hopkins University, Baltimore, Maryland

AWARDS

Research Associateship, National Research Council
Graduate Fellowship, The Johns Hopkins University
ARCS Scholar

AFFILIATIONS

American Physical Society
Materials Research Society

PUBLICATIONS

- F. H. Streitz and J. W. Mintmire, “Energetics of aluminum vacancies in gamma-alumina,” Phys. Rev. B **60**, 773 (1999)

- D. J. Keffer, J. W. Mintmire and F. H. Streitz, “Atomic-scale simulations of structural properties of ceramics,” in *Solid-State Chemistry of Inorganic Materials*, Eds., A. Jacobson, P. Davies, T. Vanderah and C. Toradi, Mat. Res. Soc. Proc. **453**, 206 (1997).

- F. H. Streitz and J. W. Mintmire, “Molecular dynamics simulations of elastic response and tensile failure of alumina,” Langmuir **12**, 4605 (1996).

- F. H. Streitz and J. W. Mintmire, “Atomic-scale simulation of tensile failure in metal oxides,” in *Structure and Properties of Interfaces in Ceramics*, Eds., D. A. Bonnell, U. Chowdhry, and M. Rühle, Mat. Res. Soc. Proc. **357**, 459 (1995).

- F. H. Streitz and J. W. Mintmire, “Metal/oxide interfaces: an electrostatics-based model,” Composite Interfaces **2**, 473 (1995).

- F. H. Streitz and J. W. Mintmire, “Electrostatic-based model for alumina surfaces,” Thin Solid Films **253**, 179 (1994).

- F. H. Streitz and J. W. Mintmire, “Electrostatic potentials for metal oxide surfaces and interfaces,” Phys. Rev. B **50**, 11996 (1994).

- F. H. Streitz and J. W. Mintmire, “Charge transfer and bonding in metal oxides,” J. Adhes. Sci. Technol. **8**, 853 (1994).

- F. H. Streitz and J. W. Mintmire, “Electrostatic potentials for metal oxide surfaces and interfaces,” in *Interface Control of Electrical, Chemical, and Mechanical Properties*, ed. S. P. Murarka, K. Rose, T. Ohm, and T. Seidel, Mat. Res. Soc. Proc. **318**, 679 (1994).

- F. H. Streitz, R. C. Cammarata, and K. Sieradzki, “Surface stress effects on elastic properties II: Metallic multilayers,” Phys. Rev. B **49**, 16707 (1994).

- F. H. Streitz, R. C. Cammarata, and K. Sieradzki, “Surface stress effects on elastic properties I: Thin metal films,” Phys. Rev. B **49**, 16699 (1994).

- K. Sieradzki and F. H. Streitz, “Elastic interactions of defects on (111) Au surfaces,” Phys. Rev. B **45**, 11433 (1992).

- F. H. Streitz, K. Sieradzki, and R. C. Cammarata, “Molecular dynamics study of (001) and (111) fcc thin films,” in *Thin Film Structures and Phase Stability*, ed. B. M. Clemens and W. L. Johnson, Mat. Res. Soc. Proc. **187** (1990).

- F. H. Streitz, K. Sieradzki, and R. C. Cammarata, “Elastic properties of thin fcc films,” Phys. Rev. B **41**, 12285 (1990).

- F. H. Streitz, C. L. Chien, "Coercivity in granular Fe-Al_2O_3," in *Multicomponent Ultrafine Microstructures,* ed. B. H. Kear, D. E. Polk, and R. W. Siegel, Mat. Res. Soc. Proc. **132** (1989).

- Gang Xiao, M. Z. Cieplak, D. Musser, A. Gavrin, F. H. Streitz, C. L. Chien, J. J. Rhyne, and J. A. Gotaas, "Significance of plane versus chain sites in high T_c oxide superconductor," Nature (London) **332**, 238 (1988).

- F. H. Streitz, M. Z. Cieplak, gang Xiao, A. Gavrin, A. Bakhshai, and C. L. Chien, "Superconducting Au-$YBa_2Cu_3O_7$ composites," Appl. Phys. Lett. **52**, 927 (1988).

- Gang Xiao, M. Z. Cieplak, A. Gavrin, F. H. Streitz, A. Bakhshai, and C. L. Chien, "High temperature superconductivity in tetragonal perovskite structure: is oxygen vacancy order important?" Phys. Rev. Lett. **60**, 1446 (1988).

- Gang Xiao, F. H. Streitz, M. Z. Cieplak, A. Bakhshai, A. Gavrin, and C. L. Chien, "Electrical transport and superconductivity in Au-$YBa_2Cu_3O_7$ percolation system," Phys. Rev. B **38**, 776 (1988).

- C. L. Chien, Gang Xiao, F. H. Streitz, A. Gavrin, and M. Z. Cieplak, "Effect of noble metal substrate buffer layers on superconducting $YBa_2Cu_3O_7$ thin films," Appl. Phys. Lett. **51**, 2155 (1987).

- Gang Xiao, F. H. Streitz, A. Gavrin, and C. L. Chien, "Superconductivity and magnetism in transition element substituted $YBa_2Cu_3O_7$ compounds," J. Appl. Phys. **63**, 4196 (1988).

- Gang Xiao, F. H. Streitz, A. Gavrin, and C. L. Chien, "Magnetic characteristics of superconducting $RBa_2Cu_3O_{6+y}$ (R = Nd, Sm, Eu, Gd, Dy, Ho, Er, Tm and Yb)," Solid State Commun. **63**, 817 (1987).

- Gang Xiao, F. H. Streitz, A. Gavrin, M. Z. Cieplak, J. Childress, Ming Lu, A. Zwicker, and C. L. Chien, "Flux pinning and critical current density in $YBa_2Cu_3O_{6+y}$ and $EuBa_2Cu_3O_{6+y}$ superconductors," Phys. Rev. B **36**, 2382 (1987).

- Gang Xiao, F. H. Streitz, A. Gavrin, Y. W. Du, and C. L. Chien, Effect of transition metal elements on the superconductivity of YBaCuO," Phys. Rev. B **35**, 8782 (1987).

PRESENTATIONS

Invited Presentations

- "Rapid resolidification in metals using dynamic compression," F.H. Streitz, J. Nguyen, J. Moriarty, N. Holmes and R. Minich, LDRD Committee, Lawrence Livermore National Laboratory, July 10, 2001, Livermore, California.

- "Rapid resolidification in metals at high pressures," F.H. Streitz, H-Division Technical Advisory Committee, Lawrence Livermore National Laboratory, Feb. 13, 2001, Livermore, California.

- "Molecular dynamics simulations of resolidification," F.H. Streitz, Tenth Conference on Computational Research on Materials, May 17-19, 2000, Morgantown, West Virginia.

- "Modeling of oxygen on Al(111) using variable charge potentials," F.H. Streitz, Physics Department, University of Alabama at Birmingham, April 14, 1999, Birmingham, Alabama

- "Modeling of charge transfer with semi-empirical potentials," F.H. Streitz, Workshop on Parallel Algorithms, Computational Efficiency and Multiscale Materials Simulations, April 2, 1999, New Orleans, Louisiana.

- "Modeling of metal oxides with semi-empirical potentials," F.H. Streitz, Lawrence Livermore National Laboratory, Jan 19, 1999, Livermore, California.

- "Molecular dynamics simulations of oxygen on (111) aluminum," F. H. Streitz, Chemistry Department, Auburn University, October 15, 1998, Auburn, Alabama.

- "Molecular dynamics simulations of oxygen on (111) aluminum," F. H. Streitz, Physics Department, Indiana University/Perdue University at Indianapolis, September 17, 1998, Indianapolis, Indiana.

- "Computational trends in nanomaterials," F.H. Streitz, Panel discussion at AAAS/SURA Workshop on Nanomaterials June 5 – 8, 1998, Atlanta, Georgia.

- "Atomic scale modeling of oxygen on (111) aluminum," F. H. Streitz, Physics Department, Wake Forest University, April 2, 1998, Greenesboro, South Carolina.

- "Atomic scale modeling of oxygen on (111) aluminum," F. H. Streitz, Department of Materials Science and Engineering, University of Florida, March 31, 1998, Gainesville, Florida.

- "Molecular dynamics treatment of SiC," F. H. Streitz, DARPA/EPRI Grant kickoff meeting, Vanderbilt University, March 24, 2998, Nashville, Tennessee.

- "Energetics of cation vacancy occupation in γ–alumina," F. H. Streitz and J. W. Mintmire, presented at the Annual Meeting of The Minerals, Metals and Materials Society, February 16 – 20, 1998 in San Antonio, Texas.

- "Distribution of cation vacancy occupation in γ–alumina," F. H. Streitz and J. W. Mintmire, presented at Computational Workshop, Vanderbilt University, November 5, 1997, Nashville Tennessee.

- "Molecular dynamics of oxygen on aluminum," F. H. Streitz, Physics Department, Auburn University, Auburn, Alabama, October 31, 1997.

- "Initial stages of oxidation in aluminum," F. H. Streitz, Physics Department, University of Alabama in Huntsville, Huntsville, Alabama, April 10, 1997.

- "Initial stages of oxidation in aluminum, " F. H. Streitz, Materials Science Department, Auburn University, Auburn, Alabama, February 25, 1997.

- "Atomic scale simulations of metal-oxide interfaces," F. H. Streitz, Chemistry Department, Auburn University, Auburn, Alabama, October 25, 1995.

- "Adhesion at metal-oxide interfaces: an electrostatics based model," J. W. Mintmire and F. H. Streitz, International Congress on Adhesion Science and Technology, Amsterdam, Netherlands, October 17, 1995.
- "Atomic scale simulations of metal-oxide interfaces," F. H. Streitz, Xerox Corporation, Webster, New York, May 25, 1995.

- "Atomic scale simulations of metal-oxide interfaces," F. H. Streitz, National Institute of Science and Technology (NIST), Gaithersburg, Maryland, April 20, 1995.

- "Atomic scale simulations of metal/ceramic interfaces," F. H. Streitz, Rutgers University, Piscataway, New Jersey, April 6, 1995.

- "Atomic scale simulations of metal-oxide interfaces," F. H. Streitz, Physics Department, Auburn University, Auburn, Alabama, November 10, 1994.

- "Atomic potentials with charge transfer for metallic oxide systems," F. H. Streitz and J. W. Mintmire, presented at the W. E. Heraeus Seminar *An Appraisal of Models for the Atomistic Simulation of Complex Systems*, September 27 – 30, 1993 in Bad Honnef, Germany.

- "Interface stress and the supermodulus effect," F. H. Streitz, Naval Research Laboratory, Washington, D.C., October 15, 1992.

- "Interface stress and the supermodulus effect," F. H. Streitz, Sandia National Laboratories, Albuquerque, New Mexico, February 20, 1992.

Contributed Presentations

- "Pressure induced rapid resolidification in metals," F. H. Streitz, presented at the Spring Meeting of the Materials Research Society, April 16-20, 2001 in San Francisco, California.

- "Molecular dynamics simulation of rapid resolidification," F. H. Streitz, presented at the March Meeting of the American Physical Society, March 12-16, 2001 in Seattle, Washington.

- "Molecular dynamics simulations of resolidification," F. H. Streitz and J.A. Moriarty, presented at the March Meeting of the American Physical Society, March 20-24, 2000 in Minneapolis, Minnesota.

- "Dynamics of oxygen on aluminum surfaces," F. H. Streitz, presented at the March Meeting of the American Physical Society, March 20-26, 1999 in Atlanta, Georgia.

- "Energetics of vacancy occupation in γ–alumina," F. H. Streitz and J. W. Mintmire, presented at the March Meeting of the American Physical Society, March 16-20, 1998 in Los Angeles, California.

- "Energetics of cation vacancy occupation in γ–alumina," F. H. Streitz and J. W. Mintmire, presented at the Annual Meeting of The Minerals, Metals and Materials Society, February 16 – 20, 1998 in San Antonio, Texas.

- "Initial stages of oxidation in alumninum," F. H. Streitz, presented at the Fall Meeting of the Materials Research Society, December 2 – 6, 1996 in Boston, Massachusetts.

- "Cation vacancy occupation in γ–alumina," F. H. Streitz and J. W. Mintmire, presented at the Fall Meeting of the Materials Research Society, December 2 – 6, 1996 in Boston, Massachusetts.

- "Atomic scale simulation of structural properties of ceramics," J.W. Mintmire and F. H. Streitz, presented at the Fall Meeting of the Materials Research Society, December 2 – 6, 1996 in Boston, Massachusetts.

- "Atomic scale simulations of metal-oxide interfaces," F. H. Streitz and J. W. Mintmire, presented at the March Meeting of the American Physical Society, March 20 – 24, 1995 in San Jose, California.

- "Atomic scale simulations of adhesion and tribology at metal-metal oxide interfaces," J. W. Mintmire and F. H. Streitz, presented at the Fall Meeting of the Materials Research Society, November 27 – December 1, 1995 in Boston, Massachusetts.

- "Model simulations of shear and tensile strain of metal-oxide interfaces," F. H. Streitz and J. W. Mintmire, presented at the March Meeting of the American Physical Society, March 20 – 24, 1995 in San Jose, California.

- "Atomic scale simulations of aluminum-alumina interfaces," F. H. Streitz and J. W. Mintmire, presented at the Fall Meeting of the Materials Research Society, November 28 – December 2, 1994 in Boston Massachusetts.

- "Adhesion at metal-ceramic interfaces: an electrostatics-based model," J. W. Mintmire and F. H. Streitz, presented at Annual Meeting of the Adhesion Society, February 20, 1995 in Hilton Head, South Carolina.

- "Structural properties of metal-oxide interfaces," J. W. Mintmire and F. H. Streitz, presented at the Southeast Sectional Regional Meeting of the American Physical Society, November 10 – 11, 1994 in Newport News, Virginia.

- "Molecular dynamics simulations of metal-oxide surfaces and interfaces," F. H. Streitz and J. W. Mintmire, presented at the National Meeting of the American Vacuum Society, October 24 – October 28, 1994 in Denver, Colorado.

- "Electrostatic potentials for metal-oxide surfaces and interfaces," F. H. Streitz and J. W. Mintmire, presented at the Fifth International Conference on Composite Interfaces, June 20 – 25, 1994 in Goteborg, Sweden.

- "Molecular dynamics with charge transfer at metal-oxide interface," F. H. Streitz and J. W. Mintmire, presented at the International conference on Metallurgical Coatings and Thin Films, April 25 – 29, 1994 in San Diego, California.

- "Structural properties of metal-oxide interfaces," F. H. Streitz and J. W. Mintmire, presented at the March Meeting of the American Physical Society, March 21 – 25, 1994 in Pittsburgh, Pennsylvania. *[Bull. Am. Phys. Soc.* ***39****, 820 (1994)].*

- "Charge transfer at transition metal-oxide interfaces, "F. H. Streitz and J. W. Mintmire, presented at the Fall Meeting of the Materials Research Society, November 28 – December 3, 1993 in Boston, Massachusetts.

- "Charge transfer at transition metal-oxide interfaces," F. H. Streitz and J. W. Mintmire, presented at the March Meeting of the American Physical Society, March 22 – 26, 1993 in Seattle, Washington. *[Bull. Am. Phys. Soc.* ***38****, 450 (1993)].*

- "Vacancy-vacancy and vacancy-step interaction on (111) Au surface using molecular dynamics," F. H. Streitz and K. Sieradzki, presented at the Annual Meeting of The Minerals, Metals and Materials Society (TMS) February 21 – 25, 1993 in Denver, Colorado.

- "Molecular dynamics simulation of elastic properties in coherent and incoherent superlattices," F. H. Streitz, R. C. Cammarata, and K. Sieradzki, presented at the March Meeting of the American Physical Society, March 18 – 22, 1991 in Cincinnati, Ohio. *[Bull. Am. Phys. Soc.* ***36*** *958 (1991)].*

- "Elastic properties of thin fcc films," F. H. Streitz, R. C. Cammarata, and K. Sieradzki, presented at the March Meeting of the American Physical Society, March 12 – 16, 1990 in Anaheim, California. *[Bull. Am. Phys. Soc.* ***35*** *796 (1990)].*

- "Coercivity in granular Fe-Al_2O_3," F. H. Streitz and C. L. Chien, presented at the 1988 Fall Meeting of the Materials Research Society in Boston, Massachusetts.

- "Superconducting Au-$YBa_2Cu_3O_7$ composites," Gang Xiao, F. H. Streitz, M. Z. Cieplak, A. Gavrin, A. Bakhshai, and C. L. Chien, presented at the March Meeting of the American Physical Society, March 21 – 25, 1988 in New Orleans, Louisiana. *[Bull. Am. Phys. Soc.* ***33****, 468 (1998)].*

- "Percolation effects in magnetic granular Co – SiO_2," F. H. Streitz, S. H. Liou, and C. L. Chien, presented at the March Meeting of the American Physical Society, March 16 – 20, 1987 in New York, New York. *[Bull. Am. Phys. Soc. 32, 831 (1987)].*

PROFESSIONAL ACTIVITY

- Reviewer, Physical Review Letters

- Reviewer, Physical Review B

- Reviewer, Journal of Materials Research

- Reviewer, Journal of Vacuum Science and Technology

- Panelist, AAAS/SURA Workshop on Nanomaterials, June 5 – 8, 1998 in Atlanta, Georgia.

- Chair, Focused Session on Atomic Scale Simulation March Meeting, Los Angeles, 1998.

- Chair, Symposium on "Atomic Level Simulation of Materials: New Methods and Novel Applications," at the 1998 Annual Meeting of The Minerals, Metals and Materials Society in San Antonio, Texas.

- Chair, Workshop on "Novel Computational Methods," sponsored by Vanderbilt University, November 5, 1997 in Nashville, Tennessee.

- Chair, Symposium on "Structure and Evolution of Surfaces" at the 1996 Fall Meeting of the Materials Research Society in Boston, Massachusetts.

- Chair, Symposium on "Complexity at Interfaces" at the 1995 March Meeting of the American Physical Society in San Jose, California.